

## Did the large copper butterfly formerly occur in Scotland?

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### ABSTRACT

The former distribution of the now extinct British subspecies of the large copper butterfly *Lycaena dispar dispar* has been the subject of debate for many years. Evidence for accepting or rejecting two old published records of the large copper in Scotland is re-examined; the conclusion reached is that with the passage of time it is no longer possible to prove or disprove the case for the butterfly having formerly occurred north of the border. A colour illustration of reputed Scottish specimens of the large copper is given.

### INTRODUCTION

A species which was lost to Britain mainly through the drainage of its low-lying marshy habitat, the large copper *Lycaena dispar dispar* (Haw.) is undoubtedly the most celebrated of our vanished butterflies. Although it is something like a century and a half since the last individuals of this endemic race of large coppers disappeared – almost certainly into the nets of collectors anxious to obtain specimens for the cabinet before it was too late – the butterfly's historical distribution in Britain is still a controversial subject.

### The large copper butterfly in Britain

James W. Tutt (1905), in an assessment of the British case-histories of the large copper butterfly available to him, came to the conclusion that the species had been reliably recorded only from the fen country of East Anglia, at the time a view probably shared by most other lepidopterists. In recent years however, sufficient evidence has come to light to be able to accept with reasonable certainty that at least one other population existed, notably on the Somerset Levels in the south-west (Sutton, 1993). That the early entomological literature contained references to the large copper as a Scottish species was described as 'an impossibility' by Tutt and the records set aside.

This remained the position until George Thomson undertook a comprehensive review of the older butterfly records relating to Scotland, when the large copper as possibly native to the country was once more brought to the fore. Thomson's inclusion of the large copper in his *Butterflies of Scotland* (1980) rests on two entries which appeared in the literature in 1798 and 1819 respectively. The first of these was the publication of volume seven of Edward Donovan's *Natural History of British Insects* (1798). Executed from living specimens according to the title page,

colour plate CCXVII (Fig. 1) is that of a butterfly he names as the 'Great Copper'. The accompanying text states ".....We have heard that this insect has been lately found in Cambridgeshire; our specimens were met with in Scotland". George Samouelle in his *Entomologist's Useful Compendium* (1819) may or may not have been alluding to Donovan's account when he listed the large copper as having been recorded from Scotland, but went one step further by adding 'observed near Aberdeen'.

From what is known today of the species' ecological requirements (Pullin *et al.*, 1995), there would appear to be little to have prevented the large copper thriving in at least the eastern counties of Scotland, which are drier and sunnier than those in the west. The lower temperatures experienced in Scotland's northerly latitudes need not have been an effective barrier, for in continental Europe the range of *Lycaena dispar* extends still further north into Finland (Mikkola, 1991). In the butterfly's former haunts in south-east England, the caterpillars of the native large copper fed exclusively on the great water dock *Rumex hydrolapathum*. However, in continental Europe another tall water dock *R. aquaticus* is also recorded as a larval food plant (Higgins & Riley, 1980). Both of these dockens occur but are extremely local in Scotland (Preston & Croft, 1997), although they may well have been more widespread in the lowlands before the draining of the 'wastes' for agriculture began in earnest. Nectar plants frequented by the adult insect – such as purple-loosestrife *Lythrum salicaria*, valerian *Valeriana officinalis*, marsh thistle *Cirsium palustre*, etc. – are all common in suitable places throughout most of Scotland.

To emphasise the fact that anomalies in the distribution of British butterflies do occur, it is worth drawing attention to the chequered skipper *Carterocephalus palaemon*, which for almost 150 years was believed to be confined to the southern counties of England. Then, to the astonishment of all lepidopterists, the skipper was found flourishing in the north-west Highlands of Scotland (Ford, 1945). This example clearly illustrates that it is possible for populations of the same species to exist in differing climatic zones and habitats, separated from each other by hundreds of kilometres.

## How an error could have been made over the first Scottish record

If we accept for the moment that Edward Donovan's record of Scottish large coppers was based on erroneous information as was later claimed, the accurate representation of the butterfly in the published plate shows that the mistake was not one of identification, but through an unfortunate mix-up over where the specimens were obtained. No explanation has ever been forthcoming for how such an error could have been made, so that one possibility involving both a Scottish and an East Anglian connection is offered here.

Although not the first lepidopterists to set eyes on the large copper in Britain, Fenwick Skrimshire (1775-1855) and his elder brother William played a significant role in the butterfly's discovery. Sometime in the 1790s the two brothers came across this (still not authoritatively described) species near Ely in Cambridgeshire, going on to further record it in Norfolk (Tutt, 1905). Fenwick Skrimshire lived most of his life in or around the fenlands of East Anglia, but as a young man he was to spend several years studying medicine at Edinburgh University, qualifying as a physician in 1798. During Fenwick's time in Scotland, his extracurricular pursuits included the collecting and sending of natural history specimens to William and others in England (Crompton & Nelson, 2000). For instance, he is acknowledged by the author of *Lepidoptera Britannica* (Haworth, 1803) for having communicated examples of the newly described 'Brown White Spot' butterfly (since renamed the northern brown argus *Aricia artaxerxes*), then known only from Arthur's Seat and the Pentland Hills. While in Scotland he was further recognised by being elected President of the Natural History Society of Edinburgh in December 1796 (Anon, 1803).

Fenwick's prominence as a naturalist during his Edinburgh days may well have given the impression to some that the Skrimshire brothers were Scottish entomologists. Couple this to the part they played in the discovery of the large copper butterfly in Britain and the opportunity was there for a misunderstanding to have taken place.

## CONCLUSION

Did the large copper formerly occur in Scotland? The truth is that the ecological case put forward by the present author - which shows there were no obvious constraints on the butterfly having once been a part of the Scottish fauna - is as speculative as the time-worn opinions which led to its outright rejection by the entomological establishment of the day. Had either argument been examined under the Scottish legal system, the courts would have almost certainly returned a verdict of 'not proven', and after this length of time it seems unlikely that any further information will be forthcoming to settle the matter one way or the other. But in raising the large copper's profile once more, at least today's butterfly enthusiasts now have

the opportunity of admiring Edward Donovan's fine colour illustration of the 'Great Copper' which deserves to be better known.

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Fig. 1. The Great Copper butterfly from Edward Donovan's *Natural History of British Insects* Vol. VII (1798).